

(21) Application No 8527804

(22) Date of filing 11 Nov 1985

(30) Priority data

(31) 8429488

(32) 22 Nov 1984

(33) GB

(51) INT CL<sup>4</sup>  
H04H 1/02

(52) Domestic classification  
(Edition H)  
H4R 17D 17V CSS

(56) Documents cited  
GB A 2124856

(58) Field of search  
H4R  
Selected US specifications from IPC sub-class H04H

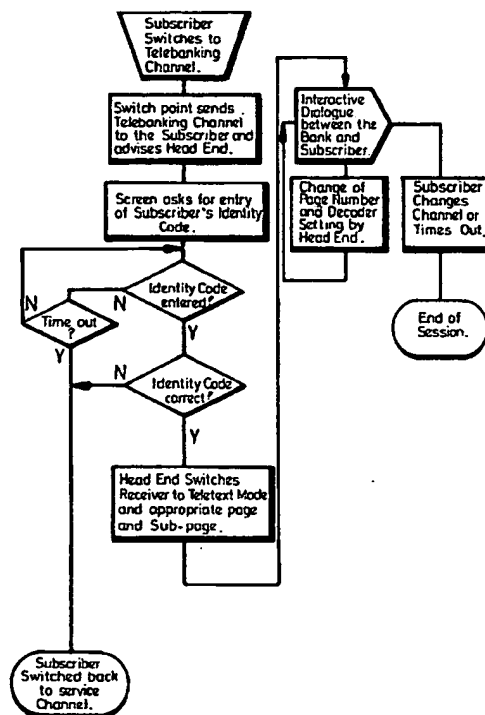
(71) Applicants  
Communications Patents Limited (United Kingdom)  
187 Coombe Lane West, Kingston-upon-Thames, Surrey  
KT2 7DJ

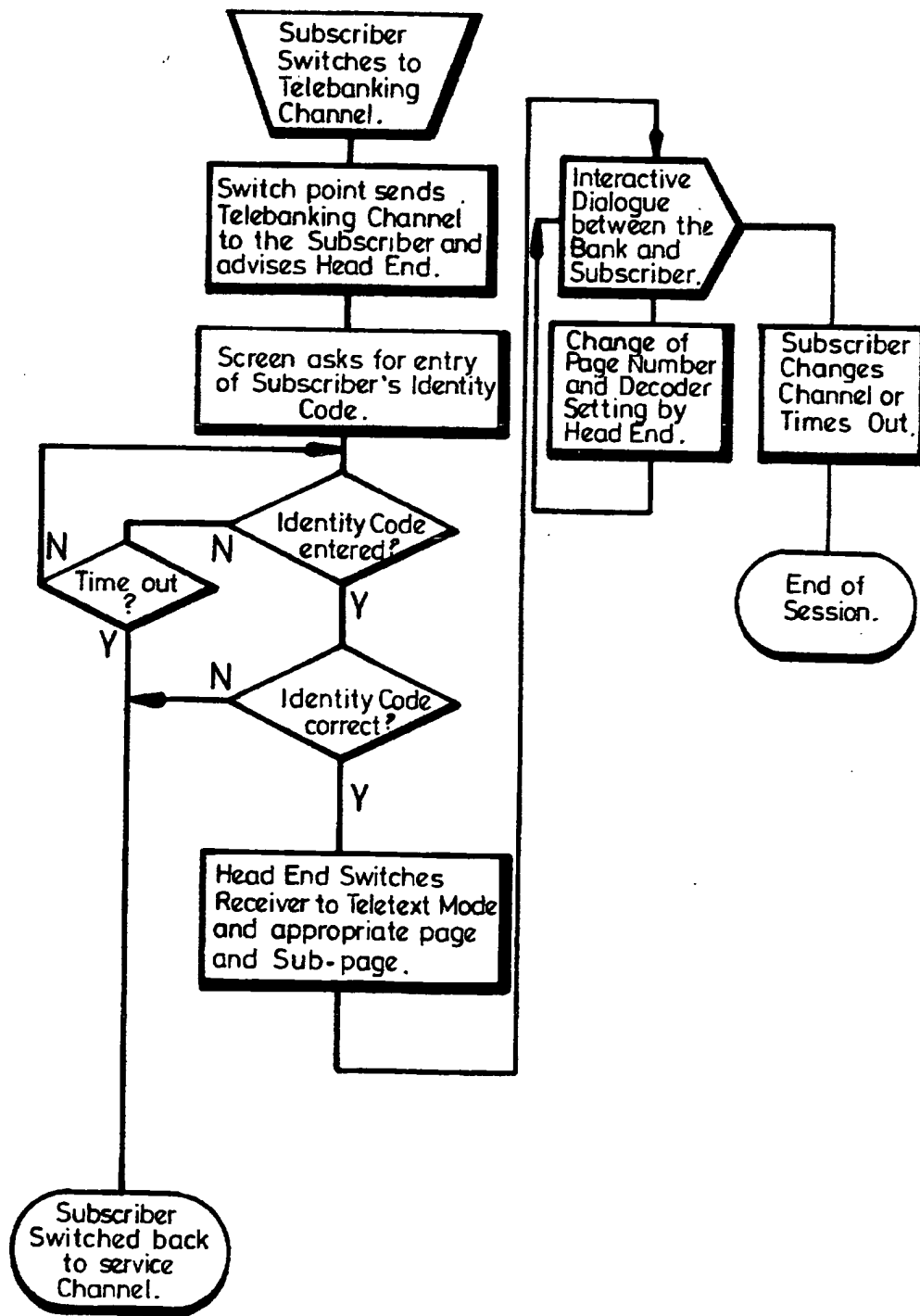
(72) Inventors  
Henry Louis Baker  
Raymond Scrivens

(74) Agent and/or Address for Service  
Wheatley & Mackenzie, Scottish Life House, Bridge Street,  
Manchester M3 3DP

(54) Interactive television distribution system

(57) An interactive television distribution system comprising a head end, a plurality of subscribers connected to the head end by distribution cables, at least some of the subscribers being provided with teletext receivers, and means for transmitting data to each subscriber's teletext receiver independently of a broadcast television signal. Data is transmitted from the head end to a subscriber to set the subscriber's teletext decoder so that it receives confidential information via a page and sub-page number determined by the data transmitted from the head end. The page and sub-page number set in the teletext decoder is displayed to the subscriber on the subscriber's receiver, and the subscriber selects the teletext page and sub-page carrying the confidential information to which he requires access by entering the transmitted page and sub-page at his teletext receiver.





## SPECIFICATION

## Interactive television distribution system

5 The present invention relates to an interactive television distribution system, and in particular to an interactive system in which at least some of the subscribers to the system are provided with teletext decoders and have the capacity to conduct interactive  
10 dialogue with organisations providing services such as shopping, banking and betting.

Many different types of cable television systems using both conductive wires and optic fibres for signal distribution have previously been proposed and some  
15 of these prior systems have had an interactive capacity enabling subscribers to make use of services provided by service organisations also connected to the system. The great problem with all interactive facilities of this type is security in that if a subscriber is  
20 to be able to conduct transactions with for example a bank via the system he must be fully confident that no other subscriber to the system will be able to gain access to his banking facilities either with a view to extracting information about his financial transactions  
25 or with a view to conducting fraudulent transactions.

Various systems have been proposed for providing the required level of security. In one system interactive services can only be conducted via the use of a teletext receiver. Each individual subscriber is given a unique  
30 identification code, such for example as a seven digit teletexted page and sub-page number. Since a standard teletext decoder can respond to over two and a half million such seven digit numbers there is very little probability of one subscriber intercepting in-  
35 formation relating to the activities of another. It is always possible however that a third party may learn the seven digit number assigned to a particular subscriber and make use of that number to monitor the subscriber's activity.

40 It is an object of the present invention to provide a system which overcomes the above problems.

According to the present invention there is provided an interactive television distribution system comprising a head end, a plurality of subscribers connected to  
45 the head end by distribution cables, at least some of the subscribers being provided with teletext decoders, and means for transmitting data to each subscriber's teletext decoder independently of a broadcast television signal, wherein means are provided to transmit  
50 data from the head end to a subscriber at least to set the subscriber's teletext decoder so that it receives confidential information for display on the subscriber's receiver via a page and sub-page number determined by the data transmitted from the head  
55 end.

Means may be provided for verifying the subscriber's teletext decoder setting and responding to the selection of a page other than that assigned to the subscriber by disconnecting that subscriber from the  
60 interactive service channel.

Preferably the page and sub-page number set in the subscriber's decoder from the head end is changed

over the data line during interactive sessions and/or between interactive sessions in a random or pseudo-random manner.

65 An embodiment of the present invention will now be described with reference to the accompanying drawing which is a flow diagram of the operation of a system for enabling interactive services between a  
70 subscriber and a banking organisation.

Referring to the drawing, when a subscriber wishes to conduct transactions with a banking organisation his first action is to switch his receiver to a channel dedicated to that service. This channel will generally  
75 be referred to as the "telebanking" channel and will be identified as such in a "menu" of available channels which is normally broadcast to all subscribers on a "service" channel advertising the various channels available to subscribers.

80 Once the subscriber has selected the telebanking channel that channel is routed to the subscriber's equipment and data indicating that the subscriber has selected the telebanking channel is returned to the head end. In the case of a star network in which a head  
85 end is connected by trunk cables to a series of switching points and each switching point is connected to a group of subscribers, each subscriber being connected to the switching point by his own dedicated cable, the selection of the telebanking  
90 channel will be detected at the switchpoint and thereafter the switchpoint equipment will distribute the required channel to the subscriber and send data representative of the selection back to the head end.

The subscriber's screen will then ask the subscriber  
95 to switch his receiver to teletext mode. This is necessary as the interactive services are to operate only via the teletext capability of the subscriber's receiver. Alternatively, this could be done over the data line.

100 After the subscriber's receiver has been switched to the teletext mode, a message appears on his screen asking him to transmit his identity code. The head end then transmits to the subscriber's equipment a data signal identifying the relevant page and sub-page  
105 number currently allocated to that subscriber. This data is used to condition the subscriber's teletext equipment. If a subscriber does not enter his identity code within a predetermined time (shown in the flow diagram as X minutes) the system times out and  
110 returns to the service channel.

Assuming that the subscriber does respond a check is then made that the correct code has been keyed in and if so the subscriber can then engage in an interactive dialogue with the bank.

115 The head end can be arranged to change the page number and decoder setting during the course of the interactive dialogue. The page number and decoder setting may be changed under the control of the head end and without any intervention by the subscriber.

120 This means that even if by some chance another subscriber has gained access to the telebanking information of a subscriber during the dialogue it will not be possible for that intruding subscriber to retain access after the page selection of the intended

recipient's decoder has been reset.

An interactive dialogue session is terminated either when the subscriber indicates he has finished or after a predetermined period of inactivity. This prevents a  
5 subscriber accidentally leaving his receiver displaying confidential information.

As an additional feature the system may also be provided with means for monitoring the decoder setting while the subscriber has access to the tele-  
10 banking channel to prevent intrusion into other subscriber's information.

#### CLAIMS

1. An interactive television distribution system comprising a head end, a plurality of subscribers  
15 connected to the head end by distribution cables, at least some of the subscribers being provided with teletext decoders, and means for transmitting data to each subscriber's teletext decoder independently of a broadcast television signal, wherein means are pro-  
20 vided to transmit data from the head end to a subscriber at least to set the subscriber's teletext decoder so that it receives confidential information for display on the subscriber's receiver via a page and sub-page number determined by the data transmitted  
25 from the head end.

2. A system according to claim 1, wherein means are provided for verifying the subscriber's teletext decoder setting and responding to the selection of a page other than that assigned to the subscriber by  
30 disconnecting that subscriber from the interactive service channel.

3. A system according to claim 1 or 2, wherein means are provided for changing the page and sub-page number set in the subscriber's decoder from  
35 the head end during interactive sessions and/or between interactive sessions in a random or pseudo-random manner.

4. A system substantially as hereinbefore described with reference to the accompanying drawing.